CLAIMS

Sub A2

1. A battery-powered tyre pressure sensor, comprising:

a pressure transducer for sensing a pressure of a tyre and providing a tyre pressure signal:

a transmitter:

a signal processor connected to the pressure transducer for providing a signal dependent on the tyre pressure signal to the transmitter:

a timing circuit connected to the signal processor which is configured to automatically switch the tyre pressure sensor on periodically for a predetermined interval to measure the tyre pressure and switch off the tyre pressure sensor at all other times to conserve battery power, in which the timing circuit comprises a timer and a switch, the timer being configured to periodically actuate the switch and thereby connect the pressure sensor to the battery to turn the tyre pressure sensor on for said predetermined interval.

2. A battery-powered tyre pressure sensor according to claim 1, further comprising a non-volatile memory device for storing an identification code used to identify transmissions from the pressure sensor.

3. A battery-powered tyre pressure sensor according to claim 2, in which the non-volatile memory device also stores calibration information which is used to determine the tyre pressure.

4. A battery-powered tyre pressure sensor according to any preceding claim, further comprising a temperature transducer connected to the signal processor to provide a

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temperature signal to the signal processor. wherein the signal processor is adapted to apply a temperature compensation to the tyre pressure signal in dependence on the temperature signal.

5. A battery-powered tyre pressure sensor according to any preceding claim. in which the signal processor is a microcontroller having an embedded computer program for controlling the operation of the pressure sensor.

6. A battery-powered tyre pressure sensor according to claim 5, in which the microcontroller is configured to record battery voltage and operating temperature each time it makes a pressure measurement and. when necessary. encode this information together with the pressure sensor identification code for transmission via the transmitter.

7. A battery-powered tyre pressure sensor according to any preceding claim. in which the transmitter comprises a surface acoustic wave (SAW) resonator.

8. A battery-powered tyre pressure sensor according to any preceding claim. configured so that it does not make any transmissions until it is connected to an inflated tyre.

9. A battery-powered tyre pressure sensor according to any preceding claim. adapted to be screwed onto the valve stem of a vehicle tyre.

10. A remote tyre pressure monitoring system for mounting on a vehicle, comprising a plurality of tyre pressure sensors according to any preceding claim in combination with a

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cab unit for mounting within the vehicle cab, the cab unit comprising:

a receiver for detecting transmissions from the respective transmitters of the tyre pressure sensors; and,

a display for providing a driver with information about the tyres on the vehicles in dependence on the received transmissions from the pressure sensors.

11. A transponder unit for use in a remote tyre pressure monitoring system for a vehicle which includes a plurality of remote tyre pressure sensors connected to respective tyres, wherein each pressure sensor is adapted to transmit a signal with information about the condition of its respective tyre, the transponder unit comprising:

a receiver for receiving the transmitted signals from the individual pressure sensors;

a signal processor for processing signals from the pressure sensors and generating a coded signal for transmission which identifies the transponder unit and tyre location; and,

a transmitter for transmitting the coded signal to a remote receiver where information can be displayed to a driver about the tyres associated with the transponder unit.

12. A transponder unit according to claim 11, further comprising a memory to store a unique identification code to identify the transponder unit.

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13. A remote tyre pressure monitoring system comprising a transponder unit according to claim 11 or 12, in combination with a cab unit, the cab unit comprising:

a receiver for receiving the coded signal from the transponder unit;

a signal processor for detecting and decoding the coded signal; and,

a display for providing the driver with information about the condition of the tyres associated with the transponder unit.

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14. A remote tyre pressure monitoring system according to claim 13, further comprising a vehicle trailer on which the transponder unit is mounted.

15. A remote type pressure monitoring system according to claim 13 or 14, in which the remote tyre pressure sensors are tyre pressure sensors according to any of claims 1 to 9.

16. A vehicle comprising a cab unit and a trailer unit connectable to the cab unit, comprising a remote tyre pressure monitoring system according to any of claims 13 to 15.

17. A vehicle according to claim 16, in which the transponder unit is responsive to transmit an identification signal to the remote receiver when power is first supplied to the transponder unit.

18. A vehicle according to claim 17, in which power is supplied to the transponder unit by activation of the vehicle brake light line.

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19. A vehicle according to any of claims 16 to 18, wherein the receiver of the transponder unit has a processor programmed to recognise transmissions from sensors connected to wheels of the trailer and ignore all others.